



NATURAL GAS VEHICLE PROGRAM

Summary of the NGNGV Working Group Meeting March 12-13, 2001 – Diamond Bar, CA

Program Overview and Meeting Purpose

Paul Norton, the past program manager from NREL, opened the meeting by welcoming the Working Group participants to the 3rd meeting of the Next Generation Natural Gas Vehicle (NGNGV) Program, providing a brief program overview and reviewing the meeting objectives and agenda. A tentative date for the next NGNGV meeting was set for the week of October 15, 2001 in Washington D.C. or California.

The meeting primarily focused on the future direction of the program in light of recent developments, and the Phase 1 Request for Proposals (RFP) and bidder's conference.

Denny Stephens, the deputy program manager from Battelle, gave an overview of all the related meetings for the week.

The detailed meeting summary is available on the Web at www.ctts.nrel.gov/ngngv/events.

Program Overview

NGNGV's vision is to develop one new medium-duty (Class 3-6) CNG vehicle and one new heavy-duty (Class 7-8) LNG vehicle that will be available as early as 2004 but no later than 2007. If successful, these vehicles will further enhance the reputation of natural gas as a clean and viable option in the transportation industry and help further diversify our nation's energy demands.

Meeting objectives

Kevin Walkowicz explained his role as the primary point of contact and provider of direction and leadership. He reviewed the program goals, and then reminded participants that the objective of the March 12-13 meeting was to have discussions and gather input from participants regarding various changes that have occurred and the impact they will have on the NGNGV Program.

New directions affecting the program

Next, Kevin reviewed new directions that impact the program, such as EPA 2007 emissions standards and if (and when) the NGNGV Program will meet the 0.2 g/bhp-hr NO_x "stretch" goal. Kevin Stork also discussed changes at the Department of Energy, including new GPRA targets for 2001 and beyond.

The group discussed the challenge of meeting emissions standards, cost competitiveness, and program funding. Kevin Stork said the budget appears to be available for this program. Regarding emissions, the group talked about 2004 standards for diesel engines compared to 2007 standards, and defining the "fully competitive" and "economies of scale" program goals. The group's task for the meeting was to decide which goals are best for the program, and how those goals are defined.

Kevin outlined new developments for the program since the last meeting. The Phase 1 RFP has been released to the public. Phase 1 focuses on emissions technology conceptual design. Phase 2, FY 2002-2006, focuses on the development of two vehicles to be put in service. Phase 2 contracts will be placed when the NGNGV Working Group decides on a feasible timeline.

Next, Kevin outlined three proposed scenarios for NGNGV Phase 2, given the new changes (outlined above). For details, refer to the PowerPoint presentation at www.ctts.nrel.gov/ngngv/events.

Factors that potentially affect these scenarios and subsequent decisions include market outlook, pending legislation, natural gas versus conventional fuel prices, and funding availability. These and other relevant factors will be considered, as appropriate.

Summary of the three possible scenarios

Scenario 1 – Medium-duty (MD) and heavy-duty (HD) vehicle development (at the 0.5 g/bhp-hr NO_x emissions level) is possible in 2004. This scenario was agreed on in past Working Group meetings.

Scenario 2 – HD vehicle development (at the 0.5 g/bhp-hr NO_x emissions level) is not possible now, based on further data from other studies, so wait until 2006 or 2007 to deliver vehicle. MD (at the 0.5 g/bhp-hr NO_x emissions level) in 2004.

Scenario 3 – MD and HD vehicle development (at the 0.5 g/bhp-hr NO_x emissions level) is not feasible for 2004; delay both vehicle builds.

The meeting was opened to discussions and “burning questions.” Discussions included energy supply and costs and integration of emissions goals and vehicle technology goals (RFP task A and B management). Phase 1 allows for technology types to be decided upon based on the emissions goal. Phase 2 will integrate specific applications to vehicle types.

Fuel economy and life-cycle cost targets will be determined based on Phase 1 data results and other relevant research.

Next, NREL’s Jennifer Elling gave an update on the NGNGV Web site and communications plan.

Phase 1 RFP Bidders Conference

NREL’s Kathee Roque reviewed the specifics of the RFP, the funding organizations, amounts, evaluation techniques and criteria, section reviews, statement of work changes, and submittal requirements. Kevin Walkowicz discussed the statement of work, describing in detail the objectives, scope of work and task A and B of the project as related to the RFP, and changes that have been made in the form of an amendment. The RFP, no. RCI-1-31070, can be found at <http://www.nrel.gov/contracts/rfps>. Proposals are due April 3, 2001.

Scenario discussion/recommendation

Kevin again reviewed the three possible scenarios and asked the Working Group to recommend the scenarios they felt represented the appropriate approach. In order to accomplish this, each attendee placed a blue dot next to the scenario he/she felt was the most feasible or suggested other scenarios. Scenario 1 received 23 dots; Scenario 2, 18 dots; and Scenario 3, 5 dots. The Working Group further discussed elements related to the scenarios.

The Working Group broke into small groups to discuss specific challenges related to marketing, project management, technical, funding, and other issues for the NGNGV Program. These challenges for each category are shown below.

Marketing solutions

- Market segmentation studies (i.e. GRI/McKay study) considering 2007 standards to determine distribution
- Expect proposals to indicate answer to the question of gas and diesel engine distribution in 2004/2007
- Best market opportunities in class 3-6 and LNG for class 7-8
- Improve life-cycle costs to draw fleets
- Commitment by user groups to ensure market share. A marketing plan is necessary. Technology risk “insurance”
- Provide incentives for infrastructure from Bush administration and industry investment (i.e. pipeline)
- Address life cycle costs of vehicle: Cost of vehicle, fuel efficiency, fuel costs, O&M costs, infrastructure

- Centrally fueled fleets: Identify high-volume sales products, high-use fuel market
- Fuel recovery fleets (landfill): Where are incentive funds?
- Need market with incentives (areas with air quality problems, rules/regulations, urban areas)
- Focus on available engines: Need chassis integration
- Diesel is the competition
- Bring HD engine into market now
- Define costs associated with externalities so customer recognizes benefits
- Increase visibility of benefits
- Increase customer education

Project Management

- DOE might be responsive to keeping the original NGNGV goals (with strong stakeholder desire)
- Program flexibility
- For 2002 0.5 g. HDE in progress and 0.5 g MDE in progress
- Target must be below standard
- Don't micromanage development. Let manufacturers run with ideas. Keep goal of 2007 less than 0.2 g. to keep above competition
- Need chassis now
- Economic fuel systems
- Align program priorities in terms of availability, emissions, and cost. Lowest common denominator.

Technology

- NGNGV should flag as an issue for regulatory agencies and OEMs to address (for example, CA Air Resources Board has had to develop a new protocol)
- What advanced chassis technologies will be included? (Brakes, fuel tank safety)
- Utilize the latest, greatest, safest technologies
- Transfer diesel gasoline technology to CNG
- Development synergy with conventional NG
- Leverage off of large stationary NG
- Include catalytic tech/after treatment into this group
- Fail safe designs to address safety
- Hybrids could be an emissions solution or considered for project integration solutions. Diesel and gasoline interests are looking at these
- NO_x 1.0 program keeps NG visibility. There isn't a program out there now that has these goals. This program beats diesel and is doable at this stage of the game
- Keep NG at half of diesel emissions at all times

Project funding

- OEMs and fuel providers to lobby CA legislature for reallocation of existing incentives. CA has a lot of money available for incentives, but needs to lobby to change this to development
- Need to hear from OEM and chassis manufacturers. There's not enough funding
- Follow what's going on in the marketplace and capitalize on state and local initiatives
- Integrate available funding versus required funding
- Initial seed money
- Need to ramp up funding to fully develop technology. One way is to try to lobby to allocate % of diesel funding to NG
- Tax incentives for internal R&D for CNG/LNG
- Not enough funding. For example, to reach 0.5 g. engine = \$5-10 M
- To develop chassis engineered new product - \$5 M
- This project is competing against diesel-funded projects

Other Challenges

- OEMs are not excited about getting products into market. Resources and customers exist now that didn't exist before
- Education, particularly of mechanic and driver

- DOE and program need to characterize NG vehicle benefits
- Incentives to reduce imports, etc. What's the cost benefit?
- DOE needs to re-examine EPAct and adhere to or develop other legislative initiatives. Put teeth into EPAct.
- Stay focused on program goals